Digital Measurement Amplifier
Type DK900

Instructions
for
adjusting and starting

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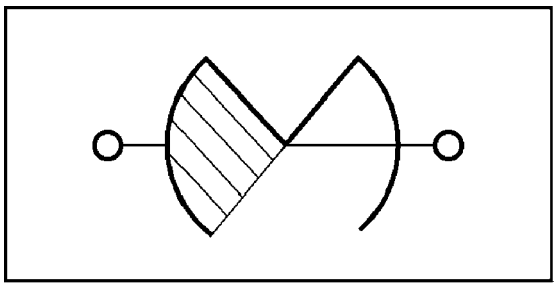

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Software version 4K
Date 2007-April

Table of contents

1. Application 1

2. Configuration 2
2.1. Profibus DP address 3
2.2. Scale 4
2.3. Filter 4
2.4. Zero point 4
2.5. Adjustment 4
2.6. Storage of the configuration and calibration data on PC / floppy disk 5
2.7. Storage of the configuration and calibration data in the DK900 5
2.8. Loading of configuration and calibration data from PC / floppy disk 5

3. The Profibus-DP interface 8
3.1. Connection 8
3.2. Parameterisation of the DK900 8
3.2.1. Profibus parameters 8
3.3. Parameterisation of the Profibus-DP Master 9
3.3.1. Design 9
3.3.2. GSD file 9
3.3.3. Consistent reading and writing 10
3.4. The data channels 12
3.4.1. Process data channel for inputs (identifier 0x98) 12
3.4.2. Bidirectional channel (identifier 0xFF) 14
3.4.3. Shortened bidirectional channel (identifier 0xBF) 17
3.4.4. Slave diagnosis 18
3.4.5. The extended identifier (0xC0, 0xFF, 0xFF) 18

4. Technical data 19

5. Connecting plan 20

6. Serial cable 22

1. Application

The DK900 Measuring Amplifier is a universal instrument for the evaluation of small analog signals.

Its main field of application is weighing technology where the instrument is operated together with load cells. As a matter of course, any other sensor with an electric analog output signal allows to be connected to this amplifier as well.

Distinctive features of the instrument are, among others:

- High stability
- Excellent resolution
- Compact design (top hat rail mounting)
- Extremely low power consumption
- Optional with Profibus

2. Configuration

The configuration and adjustment (start/end adjustment) of the scales is done via a PC/notebook PC (WIN98 or higher). The respective programme is delivered together with the instrument, on a floppy disk.

The procedure is as described below:

- Connect the DK900 to the scales.
- Connect the X2 serial interface with the PC (COMx).
- Apply an operating voltage of 24 VDC.
- Turn on the PC and start the configuration programme (DK900CFG_engl.BAT).

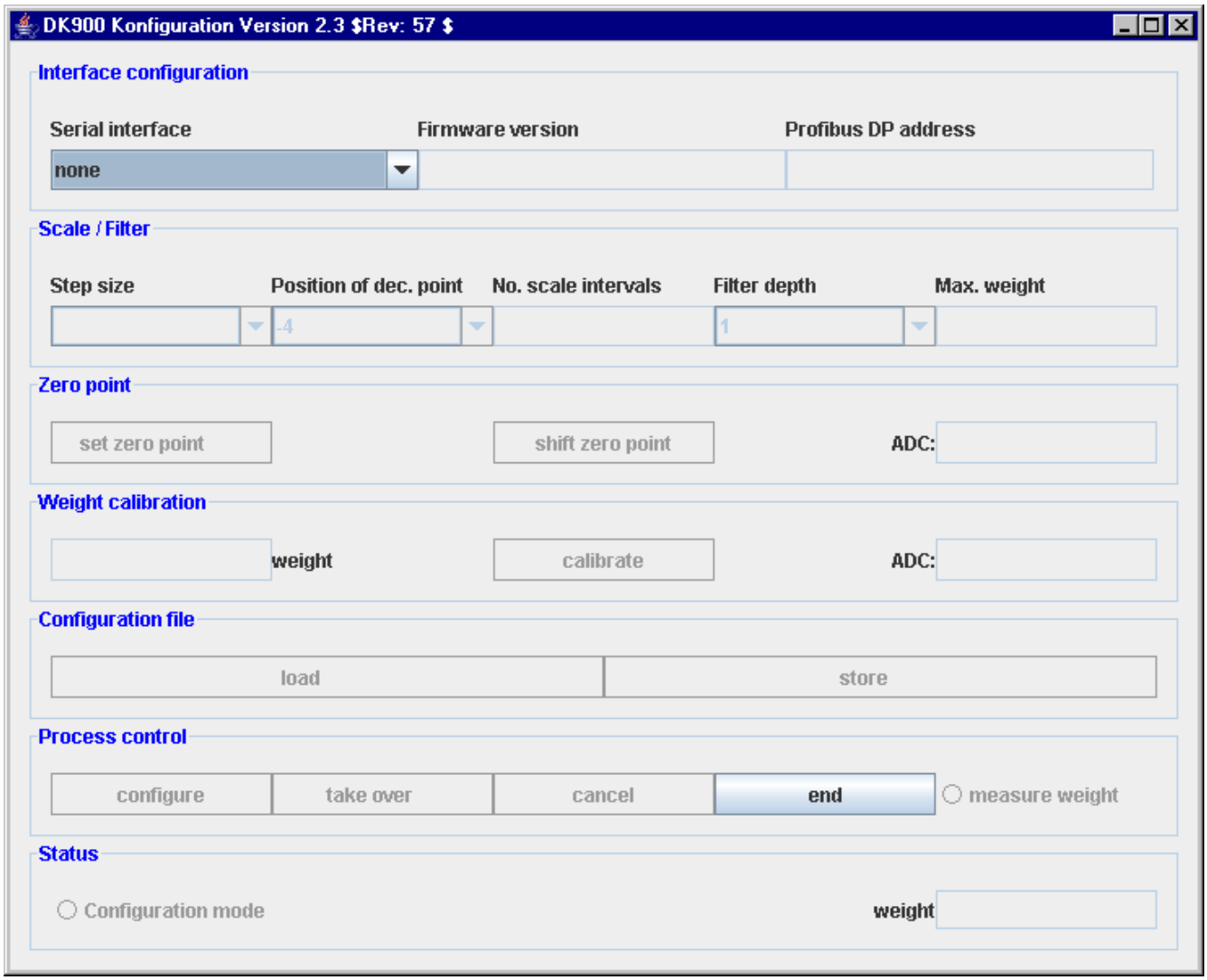


Fig. 1

- Select the serial interface to which the instrument has been connected.

The current configuration data of the DK900 will now be displayed:

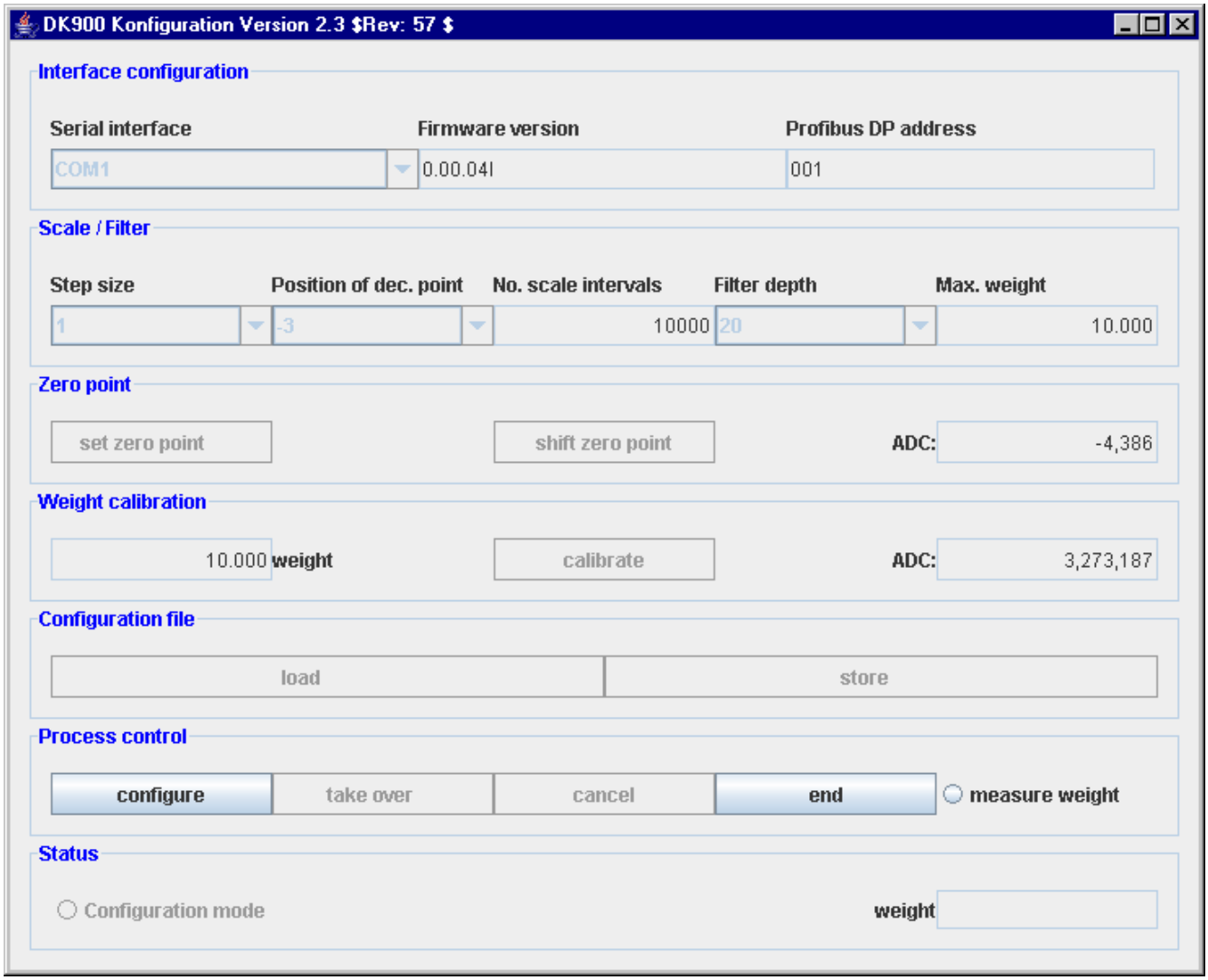


Fig. 2

The fields in the Configuration window must be filled in as follows:

2.1. Profibus DP address

Enter the instrument address (provided that the PC is equipped with a Profibus). The address may be between 001 and 125.

2.2. Scale

Input field	Range of values or option	
Step size	1 ▫ 2 ▫ 5	
position of dec. point	-4 ... 1	1 #####0 0 ##### -1 ####.# -2 ###.## -3 ##.### -4 #.####
No. scale intervals	100 ... 99999	$\frac{EndWeight}{Steps}$

1st example:

Scales with a capacity of 5000 kg and steps of 2 are to be scaled:

This means the step is 2.
Enter 0 as the decimal point position.
The no. scale intervals is calculated as follows: 5000 / 2 = 2500

2nd example:

Scales with a capacity of 15,000 kg and steps of 5 are to be scaled:

This means the step is 5.
The decimal point position is -3.
The no. scale intervals is calculated as follows: 15000 / 5 = 3000

2.3. Filter

You may enter a filter depth between 1 ... 30. The value of 20 corresponds to a limiting frequency of approximately 1 Hz.

2.4. Zero point

Click the 'set zero point' button with the scales being *empty*. The actual value determined by the analog to digital converter (ADC) will be displayed on the right hand side in the 'ADC' field.

Attention: **If required, hang/put on the scales an auxiliary device before starting adjustment.**

2.5. Adjustment

Enter the adjustment weight in the 'weight' field. This needs not necessarily be the end weight of the scales.

Hang/put the adjustment weight on the scales/auxiliary device and click the 'calibrate' button.
By clicking this button the calibration process is started. The raw value determined by the ADC (max. 7 digits) can be read from the ADC field.
If you did not use an auxiliary device, the adjustment process is now completed. Otherwise proceed as follows:

Remove the auxiliary device from the scales and click the 'shift zero point' button in the Zero point section.

2.6. Storage of the configuration and calibration data on PC / floppy disk

The configuration and calibration data can be stored on the PC, or on a floppy disk, by clicking the 'store' button in the Configuration file section.

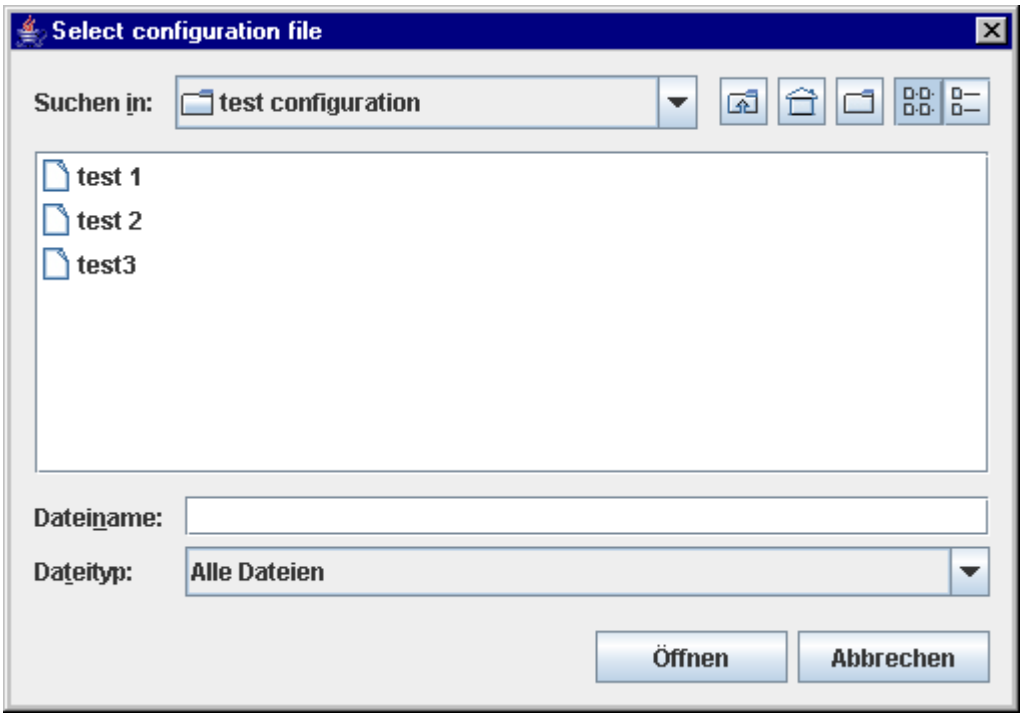


Fig. 3

Select the path/drive desired, enter a file name and click ' Öffnen '.

2.7. Storage of the configuration and calibration data in the DK900

Click the 'take over' button in order to store the configuration and calibration data in the DK900.

Click the 'end' button in order to quit the programme and close the Configuration window.

2.8. Loading of configuration and calibration data from PC / floppy disk

You may load any configuration file stored by clicking the 'load' button in the Configuration file section.

The following display will appear:

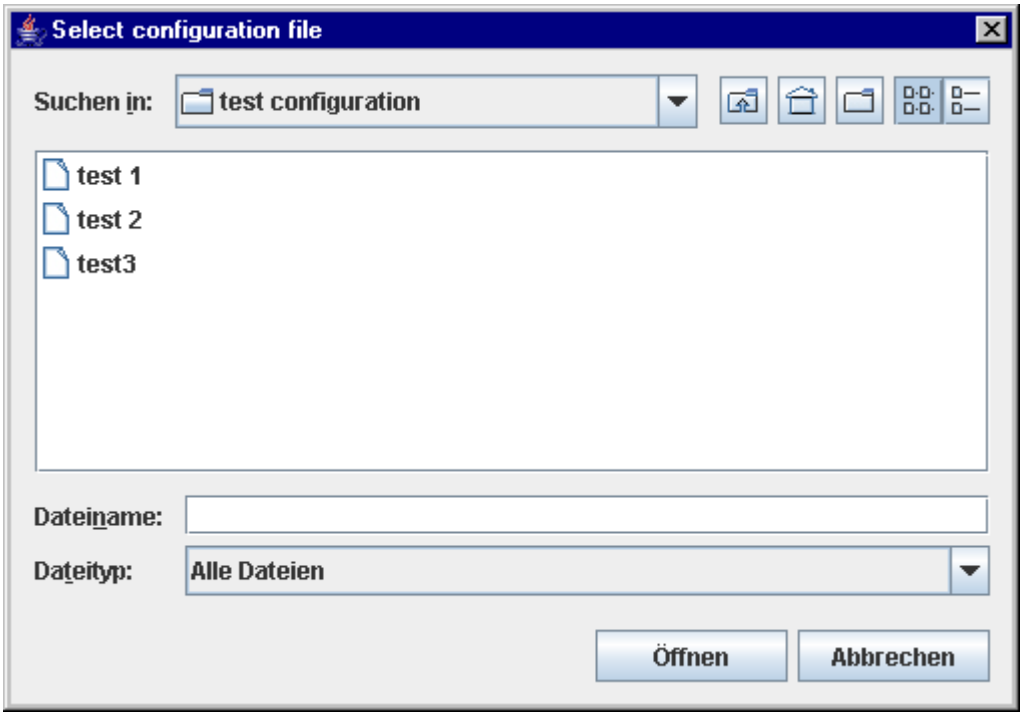


Fig. 4

First click the file desired and then click 'Öffnen'.

Click the 'take over' button in order to transfer the file selected to the DK900.

You may use this procedure to replace a defective device by a new one, for example, without having to perform a re-adjustment with the help of adjustment weights.

3. The serial interface

3.1. Connection

Data is exchanged between the master computer and the DK910 (slave(s)) via a serial interface (X2).
The data format is 8N1, with function F 53 the baud rate can be selected between 9600 and 19200 Baud.

3.2. Commands

Commands consist of an '!'=21Hex=33Dec, followed by the actual command character. When the DK800 receives a command, it checks whether it is possible to execute it. If so, it answers with *ACK*=06Hex=Ctrl-F (acknowledgement) and executes the command. If the command cannot be executed, it answers with *NAK*=15Hex=Ctrl-U (negative acknowledgement).
After *ACK* or *NAK* has been sent back, the DK910 disconnects the communication.
The basic timing is as follows:

1. DK910 receives the command (or data).
2. It checks whether the command is executable.
3. It answers with a *ACK*- or *NAK*-character.
4. It starts the execution of the command.

3.2.1. Net (Taring)

Taring is carried out to the command:
!N (21Hex & 4EHex)

Reply: *ACK* = The DK)!0 displays the net weight.
NAK = Taring is not possible, e.g. the weigher is in motion.

Taring can be executed a number of times in sequence without the unit switching back to "gross" mode.

3.2.2. Gross

The gross command cancels taring (net weight display). The command is:
!B (21Hex & 42Hex)

Reply: *ACK* = The DK910 displays the gross weight.
NAK = The DK910 cannot switch over.

4. The Profibus-DP interface

4.1. Connection

The bus connector of the Profibus interface has been designed as a 9 pole SUB-D socket in accordance with Profibus standard DIN EN 50170. The socket has been installed in the front panel of the DK900, and been marked "X6".
A bus plug is used to connect the bus cable with the DK900. The design of the bus plug (internally through-wired data connector) ensures the trouble-free connection and/or disconnection of the DK900 during running operation without affecting any other bus participant. Bus plugs of several protection classes and several types of construction, with or without a terminating resistor are commercially available.

The bus plug to be mounted on the cable side is <u>not</u> included in the DK900's scope of supply!

The pins of the 9 pole SUB-D socket have been allocated in accordance with DIN EN 50170 as follows:

X6 pin	Signal	Description
1	Shield	Shield / signal earth (identical with connector flange)
2	M24	*Open, not allocated*
3	RxD/TxD-P	Receive/transmission data - Plus
4	CNTR-P	Repeater control signal
5	DGND	Reference ground
6	VP	+5 V supply for terminating resistors
7	P24	*Open, not allocated*
8	RxD/TxD-N	Receive/transmission data - Minus
9	CNTR-N	*Open, not allocated*

If devices are used the baud rates of which exceed 1.5 MBaud it must be ensured, due to the participant's capacitive load and the line reflection generated thereby, that the connector plug to be mounted on the cable side is provided with integrated series inductances.

If the baud rates exceed 1.5 MBaud no stubs must be connected to the DK900! A stub is defined as the connecting line between the connector plug and the field device (DK900). Experience has shown that stubs are permissible for very low baud rates (up to 93.75 kBaud) only. Thus the total stub length, which is determined by adding the individual lengths of all stubs installed, must not exceed 6 meters, for example, if the baud rate amounts to 93.75 kBaud and a category A cable (30 pF/m) is used. If, in exceptional cases, the installation of stubs is unavoidable, these must not be equipped with a bus terminator.

The bus cable is match-terminated (in its impedance) by bus terminating resistors which are installed at both cable ends. The provision of 3 individual resistors as prescribed by DIN EN 50170 ensures that

- the line is set to a defined steady state potential;
- line reflections are minimised;
- the bus is set to an almost constant load behaviour.

4.2. Parameterisation of the DK900

4.2.1. Profibus parameters

The 3 digit Profibus address must be entered in the DK900 since it does not allow to be edited via the Master. The address is communicated to the DK900 Profibus controller via the DK900's internal serial interface. As soon as the entry of a new Profibus address is completed, the DK900 logs out of the Profibus and tries to get in contact with the Profibus Master via the new Profibus address.
Profibus communication is impossible until the DK900 has started, i. e. until measuring values appear in the display.

The DK900 Profibus controller is provided with an automatic baud rate detection feature and supports baud rates from 9.6 kBaud up to 12 MBaud.

4.3. Parameterisation of the Profibus-DP Master

4.3.1. Design

In order to design a Profibus-DP network, the device master data files ("GeraeteStammDaten", GSD files) of all bus participants must be entered in the Profibus Master configuration programme. It may be necessary to enter a "Read in/Save" and/or "Translate" command after this, depending on the master software used.

4.3.2. GSD file

The device master data file (GSD file) for the DK900 is included in the DK900's scope of supply, and is delivered on 3.5 inch floppy disks together with the device.
The name of the GSD file is: DK9007A3.GSD
All parameters required by the DK900 are provided by the device master data. You must, however, select the data channels to be used therefor.

Important! If the process data channel is used together with the bidirectional channel, it may be necessary - in case a Siemens S7 SPC is used (depending on the CPU type) - to use the shortened bidirectional channel for the commands to be transmitted to the DK900 since certain CPU types are not able to transmit more than a total of 32 Bytes per DP slave.

Fig. 7 shows the integration of the GSD file and the parameterisation by the example of a Siemens S7 SPC:

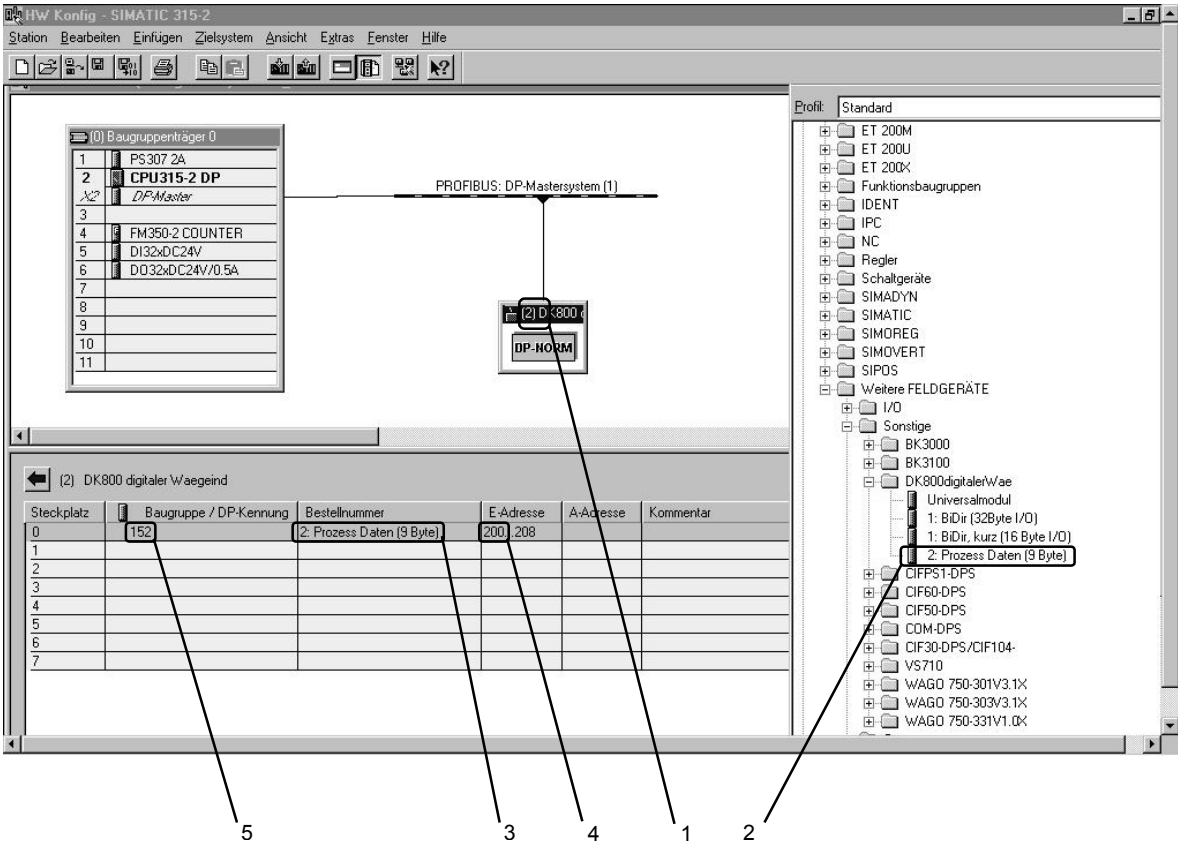


Fig.7 S7 Hardware configuration

Explanations of Fig. 7:

1 Profibus address of the slave device (here 2, for example), this address must correspond to the address entered in the DK900.

2+**3** Data channel selected (here the process data channel, for example)

4 Input address (here 200..208 = 9 Bytes, for example)

5 DP identifier, the hexadecimal identifier 0x98 of the process data channel is displayed as 152 (decimal) in this example. This identifier is a description of the data structure and contains, among others, information on data length, the number of consistent bytes, and data flow direction.

4.3.3. Consistent reading and writing

Data that belong together with respect to their contents and must therefore not be separated are called consistent data. For example, the actual value of the DK900 and the status always belong together and must not be adulterated by reading them out at different points in time. Therefore, the DK900 always generates a consistency over all data bytes transmitted.
If a Siemens S7 SPC is used, it is generally impossible to access the device via load instructions that access the individual bytes or words of the periphery and/or process image of the inputs, for example, since the data area is consistent over its entire length.
In order to have an S7 communicate with one/several DK900(s), the following system functions must be used:

- SFC 13 "DPNRM_DG" Read the slave diagnosis
- SFC 14 "DPRD_DAT" Read the consistent data of a DP standard slave
- SFC 15 "DPWR_DAT" Consistently write data to a DP standard slave

The above stated system functions are included in the scope of supply of Step7 (Version V5.), they can be found in the Standard Library, and are described in the Step7 Reference Manual.

Proceed with any other SPC makes and computers accordingly.

Fig. 8 shows the SFC14 "DPRD_DAT" function called to read out data from the DK900:

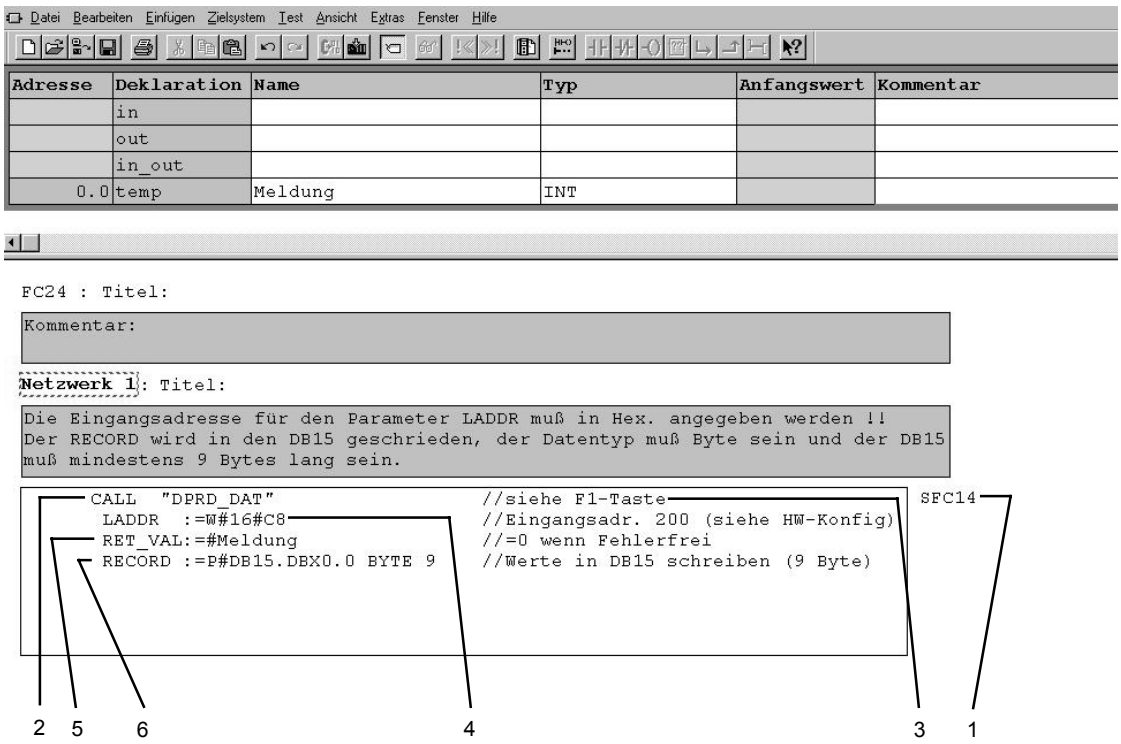

Datei Bearbeiten Einfügen Zielsystem Test Ansicht Extras Fenster Hilfe
Adresse Deklaration Name Typ Anfangswert Kommentar
in
out
in_out
0.0 temp Meldung INT
FC24 : Titel:
Kommentar:
Netzwerk 1: Titel:
Die Eingangsadresse für den Parameter LADDR muß in Hex. angegeben werden !!
Der RECORD wird in den DB15 geschrieden, der Datentyp muß Byte sein und der DB15
muß mindestens 9 Bytes lang sein.
CALL "DPRD_DAT" //siehe F1-Taste SFC14
LADDR :=W#16#C8 //Eingangsadr. 200 (siehe HW-Konfig)
RET_VAL:=#Meldung //=0 wenn Fehlerfrei
RECORD :=P#DB15.DBX0.0 BYTE 9 //Werte in DB15 schreiben (9 Byte)
2 5 6 4 3 1

Fig. 8 SFC14 "DPRD_DAT

Explanations of Fig. 8:

1 SFC14 system function

2 System function call

3 The F1 key can be used to request help from the system with respect to this module.

4 LADDR parameter: This is the projected start address from the E area of the assembly from which the value is to be read out. This is the value "200" (=C8) in hexadecimal form, which is marked **4** in Fig. 7. Hexadecimal notation is mandatory!

5 RET_VAL parameter: If an error occurs while the function is processed, the return value will contain an error code. The data of the DK900 were not properly read unless this value is =0.

6 RECORD parameter: Target area for the reference data read (here DB15, for example). The DB must have a minimum length of 9 Bytes so that the data of the "E-Adresse" 200..208 = 9 Bytes (see Fig. 7 in the column marked **4**). The only data type permitted is BYTE.

In order to write data to the DK900 the SFC 15 "DPWR_DAT" is to be used, which must then be parameterised likewise.

4.4. The data channels

The DK900 offers the following data channels which are logically separated from each other:

- Process data channel for inputs (identifier 0x98)
- Bidirectional channel (identifier 0xFF)
- Shortened bidirectional channel (identifier 0xBF)
- Slave diagnosis

The following combinations are possible:

- Process data channel alone: 98
- Bidirectional channel alone: FF
- Short bidirectional channel alone: BF
- Process data channel + bidirectional channel: 98 + FF or FF + 98
- Process data channel + short bidirectional channel: 98 + BF or BF + 98

4.4.1. Process data channel for inputs (identifier 0x98)

The process data channel contains, at any time, the data that appear in the display of the DK900. It is impossible to transmit commands or data to the DK900.
The data are continuously transmitted to the Master at the maximum speed defined during the Profibus' parameterisation. The data contents are updated at the mean value rate defined for the analog output of the DK900 during parameterisation. The same applies for systems that are not equipped with an analog output, as far as hardware is concerned. This allows very fast data transmission (up to appr. 10 milliseconds) with a steady display at the same time.
The data are put out with the increment parameterised within the DK900. Transmission is performed in the form of a standard input identifier with a 9 Byte consistency.

Data mapping on the Profibus:

Byte	Description	
0	The 6 decimal digits of the weight value are converted to a 32 bit 2' complement representation, together with the sign. If the DK900 delivers a weight value of ??????, or the serial connection to the DK900 is interrupted, the maximum positive value (7FFFFFFFhex) is transmitted. Byte 0 contains Bits 7..0 (LSB) of the actual value.	
1	Bits 15..8 of the actual value	
2	Bits 23..16 of the actual value	
3	Bits 31..24 of the actual value (MSB)	
4	Status and evaluation of Bytes 0..3	
	Bit 7	There is no valid actual value, or a serial error has occurred.
	Bit 6	No internal serial connection to the DK900's main board
	Bit 5	Watchdog bit (changes its state every 200 ms)
	Bits 4,3	*At present, always 0 (free for extensions)*
	Bit 2	Number of positions after the decimal point Bit 2^2
	Bit 1	Number of positions after the decimal point Bit 2^1
	Bit 0	Number of positions after the decimal point Bit 2^0
5	Bit 0 - 7	*At present, always 0 (free for extensions)*
6	Bit 7	*always 0*
	Bit 6	*always 0*
	Bit 5	Status Input IN5
	Bit 4	Status Input IN4
	Bit 3	Status Input IN3
	Bit 2	Status Input IN2
	Bit 1	Status Input IN1 (keyboard lock)
	Bit 0	Status Input IN0 (tare)
7	Bit 0 - 7	*At present, always 0 (free for extensions)*
8	Bit 7	*always 0*
	Bit 6	*always 0*
	Bit 5	Status Output OUT5
	Bit 4	Status Output OUT4
	Bit 3	Status Output OUT3
	Bit 2	Status Output OUT2
	Bit 1	Status Output OUT1
	Bit 0	Status Output OUT0

Table 1 Process data channel

The watchdog bit (Bit 5 within Byte 4) is not updated while the DK900 is carrying out internal processes (e. g. if the DK is being parameterised via the device's keyboard)!

Byte 4, Bits 0..2 contain the number of positions after the decimal point parameterised.

The evaluation of the Data Bytes 0..3 is done in the 2's complement format and is not directly compatible with a Siemens S7 SPC, for example. Any conversion into the double integer number format will be performed as follows:

Use the SFC 14 in order to read out the process data channel data from the DK900 and file them in the DB10 data module, for example.
Since the actual value of the scales is displayed from Data Byte 0 to 3, it is possible to have direct access in the form of a double word.

```
L    DB10.DBD 0   Load the double word filed in DB10 starting with data word 0
TAD               Reverse the order of the bytes in AKKU 1 (32 Bits)
INVD              Generate the 1's complement, integer (32 Bits)
L    L#-1         Multiply AKKU1
*D                with -1
L    L#1          Subtract from AKKU1
-D                the value of 1
T    MD100        Store the result in the flag double word 100
```

Now Bits 0..2 must be read from Byte 4 and be stored as the number of positions after the decimal point. In order to achieve that the actual value is evaluated with the correct decimal point position in the floating point format, the following calculation must be made:

$$\textit{Actual value} = \frac{\text{MD100}}{10^{\text{No. of pos. after dec. point}}}$$

4.4.2. Bidirectional channel (identifier 0xFF)

The bidirectional (acyclic) channel allows to transmit to and receive from the DK900 commands and/or data, via the Profibus.

Commands and/or data → DK900		
Master	DK900 (slave)	Explanation
!0	(*ACK/NAK*)	Settting zero
!B	(*ACK/NAK*)	Gross
!N	(*ACK/NAK*)	Net (taring)
!R	(*ACK/NAK*)	Reset
!A abcd	(*ACK/NAK*)	Set / reset outputs

Table 2a Summary of the serial functions available

The command:
!A m abcd
is for set / reset the outputs.

If m=1 (31Hex), the digital outputs (A0 ... A5) can be set.
a always 0 (30Hex)
b always 0 (30Hex)
c = Required status for output A5 + A4
2^7 = 0 / 2^6 = 0 / 2^5 = 1 / 2^4 = 1/ 2^3 = 0 / 2^2 = 0
2^1 = Output A5
2^0 = Output A4
d = Required status for output A3...A0
2^7 = 0 / 2^6 = 0 / 2^5 = 1 / 2^4 = 1
2^3 = Output A3
2^2 = Output A2
2^1 = Output A1
2^0 = Output A0

If m=3, (33Hex), individual Bits of the outputs A0...A5 can be set separately or reset.
a = 0 (30Hex) reset individual bit
= 1 (31Hex) set individual bit
b = always 0 (30Hex)
c = always 0 (30Hex)
d = 30Hex Output 0
31Hex Output 1
32Hex Output 2
33Hex Output 3
34Hex Output 4
35Hex Output 5

Data ← DK900		
Master	DK900 (slave)	Explanation
*I	viiiiiinxxxxxxxx	Request the actual value (gross/net) v = sign iiiiii = actual value n = No. of digits after the decimal point xxxxxxxx = free

Table 2b Summary of the serial functions available

The toggle bit must be changed in order to trigger transmission. A new transmission is started as soon as the toggle bit has changed from 0 to 1 or vica versa. The response is invalid unless the toggle bit received has the same state as the request. The Master must, therefore, wait for the DK900's response until it can transmit a new command (data request) to the DK900. "Acknowledge" is set when the response to a telegram without data response was ACK, or data were delivered in response to a telegram with data response.
The response time to commands which read or write data amounts to appr. 10 milliseconds. Commands which cause a response of the DK900 (e. g. tare) have an execution time of 0.3 to 2 seconds at maximum (depending on, among others, the mean value rate parameterised). Therefore, the response to such commands cannot appear on the Profibus before this time has elapsed.

Telegram from Profibus Master to the DK900 (command, instruction):

Byte	Description	
0	Control byte	
	Bit 7	Toggle bit, after the start of the DK900 the toggle bit is = 0.
	Bit 6	0, no meaning
	Bit 5	0, no meaning
	Bits 4..0	Number of characters, starting with Byte 1
1	1st character to be transmitted	
2..31	Subsequent characters	

Table 3 Bidirectional channel (Master → DK900)

Important! If the SFC15 "DPWR_DAT" function is used to write data, the toggle bit (Bit 7) must be paid special attention to when treating Byte 0. Every time the toggle bit changes its state (both when changing from 0 → 1 and when changing from 1 → 0), a transmission process is triggered.
If, for example, the current state of the toggle bit is 1, and a new number of characters is loaded into Byte 0 by a simple loading instruction, this loading instruction alone already causes the state of the toggle bit to change from 1 to 0, thus triggering a transmission process.

Telegram from the DK900 to the Profibus Master (response):

Byte	Description	
0	Control byte	
	Bit 7	Toggle bit
	Bit 6	1=ACK, 0=NAK
	Bit 5	1= • No valid response received via the internal serial interface; • or the command is not supported, e. g. "*X..." • otherwise 0.
	Bits 4..0	Number of characters, starting with Byte 1
1	1st character to be transmitted	
2..31	Subsequent characters	

Table 4 Bidirectional channel (DK900 → Master)

Important! When reading data, the DK900's response is invalid unless, within Byte 0, Bit 5 = 0, Bit 6 = 1, and unless the toggle bit (Bit 7) has the same state as the toggle bit within Byte 0 of the data transmitted.

4.4.3. Shortened bidirectional channel (identifier 0xBF)

This channel is recommended to be used only if problems occur when using the bidirectional 32 Byte channel with the identifier 0xFF, e. g. if it is impossible to ensure consistency over more than 16 Bytes on the SPC. The shortened 16 Byte channel (identifier 0xBF) corresponds to the 32 Byte channel (identifier 0xFF), but is limited to a length of 16 Bytes. Responses of the serial interface of the DK900 are restricted to a length of 15 Bytes.

Telegram from the Profibus Master to the DK900 (command, instruction):

Byte	Description	
0	Control byte	
	Bit 7	Toggle bit, after the start of the DK900 the toggle bit is = 0.
	Bit 6	0, no meaning
	Bit 5	0, no meaning
	Bit 4	0, no meaning
	Bits 3..0	Number of characters, starting with Byte 1
1	1st character to be transmitted	
2..15	Subsequent characters	

Table 5 Shortened bidirectional channel (Master → DK900)

Telegram from the DK900 to the Profibus Master (response):

Byte	Description	
0	Control byte	
	Bit 7	Toggle bit
	Bit 6	1=ACK, 0=NAK
	Bit 5	1= • No valid response received via the internal serial interface; • or the command is not supported, e. g. "*X..." • otherwise 0.
	Bit 4	The length of the DK900's response has been limited.
	Bits 3..0	Number of characters, starting with Byte 1
1	1st character to be transmitted	
2..15	Subsequent characters	

Table 6 Shortened bidirectional channel (DK900 → Master)

4.4.4. Slave diagnosis

The standard diagnosis reads "DK900_V1.0".
If the DK900 Profibus controller is unable to get into contact with the DK900, or if the communication with the DK900 has been interrupted, a diagnosis with the EXT_DIAG Bit being set will be put out.

Diagnosis via the Profibus:

Byte	Description	
0	Number of the bytes of the diagnosis (0x0F hex)	
1..10	Text "DK900_V1.0"	
11	Fatal ERROR, the EXT_DIAG Bit will be set	
	Bit 7	Successive serial data errors
	Bit 6	Successive serial timeout errors
	Bit 5	ROM error (gateway)
	Bit 4	RAM error (gateway)
	Bit 0	Reserved, this bit does not cause any diagnosis.
12	Last error code	
	Bit 5	No valid Profibus address received from EEPROM.
	Bit 4	No valid Profibus address received via the serial interface.
	Bit 3	Serial data error
	Bit 2	Serial timeout
	Bit 1	Hardware error
13	Counter (constant) of the errors occurred	
14	Bit 0	Reserved (1)

Table 7 Diagnosis

4.4.5. The extended identifier (0xC0, 0xFF, 0xFF)

The extended identifier serves only to configure the DK900 at the manufacturer's plant. It does not allow to be configured together with other identifiers, but only alone.
The channel of the extended identifier allows to transmit to the DK900 serial commands with a length of up to 125 Bytes, via the Profibus.

Attention! Not all Profibus Masters support extended identifiers.

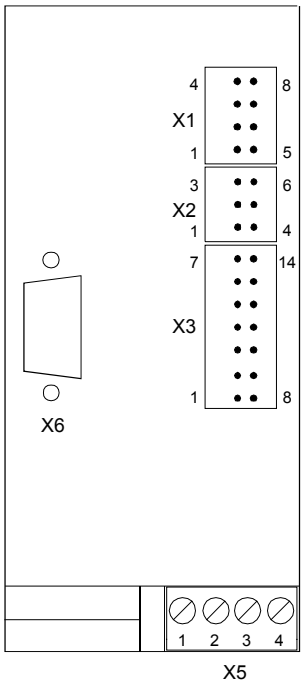
Attention! The configuration parameters of the DK900 comprise appr. 1 kilobyte of data (appr. 10 data blocks of about 100 Bytes each), which must then be stored and managed by the Master.

5. Technical data

power supply	nom. 24 VDC (18 ... 30 VDC smoothed)
current consumption without load cells	< 30 mA at 24 VDC
load cell supply voltage	10 VDC +- 0,1 %
maximum current	approx. 500 mA (maximum of 15 load cells of 350 Ω)
int. resolution	24 Bit ≈ 16 x 10^6 digits
pract. available resolution	approx. 19 Bit, ≈ 500 000 digits
conversion rate	approx. 30 / sec.
linearity faults	< 0,003 % v. E.
zero-point stability	< 0,3 µV / °C
output 1	serial interface RS 232 on mainboard
output 2	Profibus on separate board (optional)
control inputs/ Control outputs	4 inputs / opto-decoupled 4 output / opto-decoupled
power supply for in-/outputs	24 VDC (18 ... 30 VDC)
max. output current of 1 output	approx. 500 mA / short circuit resistant
nominal output level	0 VDC / 24 VDC
nominal input level	0 VDC / 24 VDC
in-/outputs are at present without function	
Filter	filter depth selectable 1 ... 30
optional Profibus board /auxiliary board	connected via cable with the mainboard
current consumption of auxiliary board	approx. 70 mA
configuration	via RS232-interface (see chapter 2)
dimensions: standard version with Profibus board	 H 99 / W 22,5 / D 115 mm H 99 / W 45 / D 115 mm

6. Connecting plan

DK 900/PDP



Dimensions:

H = 99, W = 45, D = 115
without plugs

X1 Load cell

4 +Signal	8 -Signal
3 +Sense	7 -Sense
2 +10V	6 GND
1 Shield	5 Shield

X2 Interface RS232

3 RTS	6 CTS
2 TXD	5 RXD
1 Shield	4 GND

X3 In / Outputs

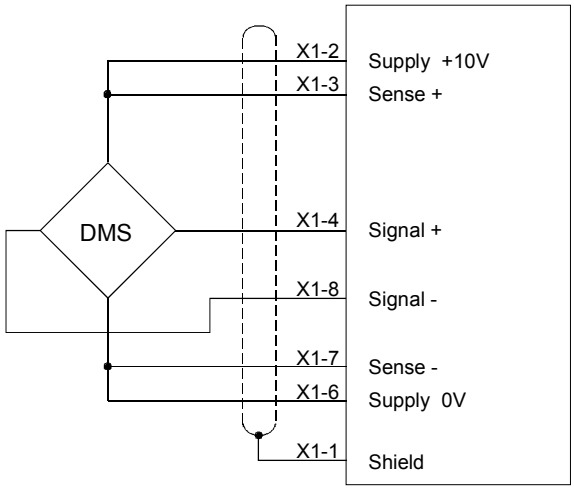
7 IN 5:	14 OUT 5:
6 IN 4:	13 OUT 4:
5 IN 3:	12 OUT 3:
4 IN 2:	11 OUT 2:
3 IN 1:	10 OUT 1:
2 IN 0: tare	9 OUT 0:
1 +UB DIO 12-30V	8 GND DIO

X5 Supply
1 +24V
2 GND
3 PE
4 PE

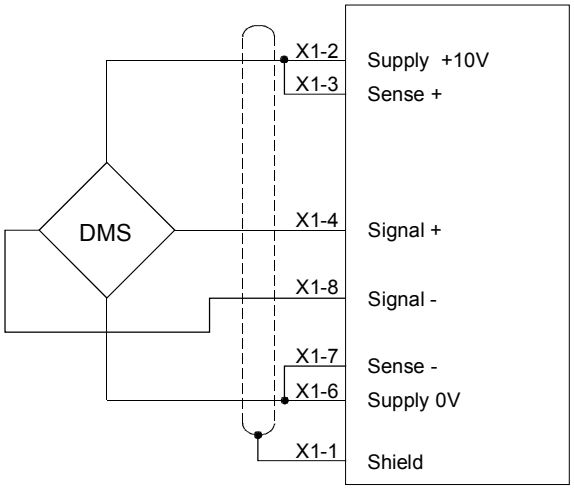
X6 Profibus
D-Sub 9pol.Bu

Änderung	Tag	Name	Tag	Name	MESOMATIC Automation u. Meßtechnik GmbH 71394 KERNEN
			Dec. 04	Schn	DK 900/PDP
					connecting plan

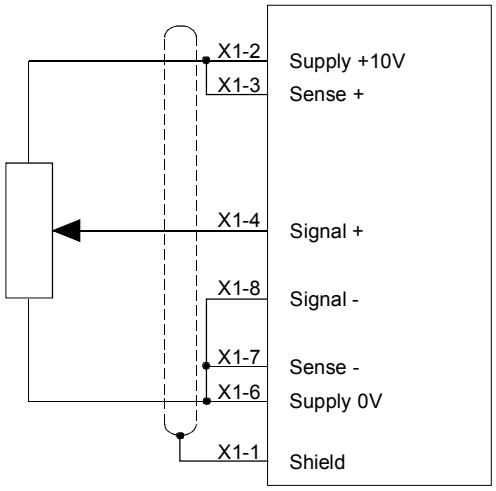
6 wire load cell electrical connection



4 wire load cell electrical connection



Special version: measurement potentiometer



7. Serial cable